

1       What is claimed is:

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3 1.       A radial optic neurotomy knife comprising:

4       a blade having an asymmetrical “V” shaped tip, said “V” shaped tip having a point and a broad  
5 portion, a first leg of said “V” shape having a sharpened edge, and a second leg of said “V” shape  
6 having a dulled edge; and

7       a tip holding shaft having a central axis, a first end, and a second end attached substantially  
8 near said broad portion of said “V” shaped tip.

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10 2.       The radial optic neurotomy knife as set forth in claim 1 further comprising:

11       a depth gauge positioned substantially with said blade whereby depth of penetration of said  
12 blade is monitored.

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14 3.       The radial optic neurotomy knife as set forth in claim 2 said depth gauge further comprising:

15       one or more lines placed onto said blade at a user desirable distance from said point.

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17 4.       The radial optic neurotomy knife as set forth in claim 3 whereby:

18       one or more of said lines of said depth gauge are formed by laser marking.

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20 5.       The radial optic neurotomy knife as set forth in claim 2 said depth gauge further comprising:

21       one or more lines placed substantially perpendicular to said central axis of said tip holding  
22 shaft and between said point and said tip holding shaft.

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24 6.       The radial optic neurotomy knife as set forth in claim 1 further comprising:

25       a handle of substantially cylindrical form connected near said first end of said tip holding shaft.

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27 7.       The radial optic neurotomy knife as set forth in claim 1 whereby:

28       said sharpened edge of said first leg of said “V” shape is substantially formed from one or  
29 more linear tapers extending from substantially near said central axis of said tip holding shaft toward

1 said first leg.

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38. The radial optic neurotomy knife as set forth in claim 1 whereby:

4 said first leg is angled approximately 12 degrees from the central axis of said tip holding shaft.

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69. The radial optic neurotomy knife as set forth in claim 8 whereby:

7 said second leg is angled approximately 10 degrees from the central axis of said tip holding

8 shaft

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1010. The radial optic neurotomy knife as set forth in claim 9 whereby:

11 said second leg deviates from said 10 degrees as it approaches said point of said "V" shape

12 to an angle of approximately 30 degrees relative to said central shaft axis.

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1411. The radial optic neurotomy knife as set forth in claim 10 whereby:

15 said second leg deviation is further placed slightly across said central shaft axis toward said

16 first leg and said point is located across said central shaft axis toward said first leg.

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1812. The radial optic neurotomy knife as set forth in claim 9 whereby:

19 said second leg deviates slightly across said central shaft axis toward said first leg and said

20 point is placed across said central shaft axis toward said first leg.

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2213. The radial optic neurotomy knife as set forth in claim 1 whereby:

23 said tip holding shaft is slightly smaller in a diameter or a width than said broad portion of said

24 "V" shape and a transitional taper is placed between said "V" shape and said tip holding shaft.

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2614. The radial optic neurotomy knife as set forth in claim 3 whereby:

27 said first leg is approximately .090 inches in length and one or more of said lines are

28 positioned proximally from said point approximately .108 inches, and said point is positioned across

29 said central shaft axis toward said first leg approximately .003 inches

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2 15. A radial optic neurotomy knife for performing a radial optic neurotomy procedure comprising:  
3 an asymmetrical “V” shaped tip having a point and a broad portion, a first leg of said “V”  
4 shape having a sharpened edge, and a second leg of said “V” shape having a dulled edge; and  
5 a tip holding shaft having a central axis, a width less than said broad portion of said “V”  
6 shaped tip, a first end having an attached handle, and a second end attached with a transitional taper  
7 substantially near said broad portion of said “V” shaped tip; and  
8 a depth gauge in the form of one or more lines placed onto said asymmetrical “V” shaped tip  
9 or said transitional taper.

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11 16. The radial optic neurotomy knife for performing a radial optic neurotomy procedure as set  
12 forth in claim 15 whereby:

13 one or more of said lines forming said depth gauge comprise laser marks.

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15 17. The radial optic neurotomy knife for performing a radial optic neurotomy procedure as set  
16 forth in claim 15 whereby:

17 said point of said asymmetrical “V” shaped tip is located slightly across said central shaft axis  
18 toward said first leg and said second leg extends slightly across said central shaft axis toward said first  
19 leg.

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21 18. A method of performing a radial optic neurotomy surgical procedure, the steps comprising:  
22 forming an asymmetrical “V” shaped tip having a point and a broad portion and a first leg  
23 having a sharpened edge and a second leg having a dulled edge; and

24 forming a transitional taper near said broad portion extending away from said point; and

25 connecting said transitional taper opposite said broad portion with a tip holding shaft having  
26 a central axis and an attached handle; and

27 inserting said “V” shaped tip point radial to an optic nerve head whereby said dulled edge is  
28 nearest said optic nerve head; and

29 advancing said “V” shaped tip a specified distance whereby a compartment syndrome may be

1 relieved by relaxing a cribiform plate, a scleral ring, or an adjacent sclera thereby reducing the  
2 possibility of hemorrhage.

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4 19. The method of performing a radial optic neurotomy surgical procedure as set forth in claim  
5 18 further comprising:

6 forming a depth gauge with said "V" shaped tip or said transitional taper; and

7 reading said depth gauge as said "V" shaped tip is inserted; and

8 limiting said inserting of said "V" shaped tip pursuant to said reading of said depth gauge  
9 whereby said specified distance of said "V" shaped tip advancing is achieved.

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11 20. The method of performing a radial optic neurotomy surgical procedure as set forth in claim  
12 19 said forming of said depth gauge further comprising:

13 forming one or more lines on said "V" shaped tip or said transitional taper substantially  
14 perpendicular with said central axis of said tip holding shaft.

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